Thomas R. Teehan
Senior Counsel

September 27, 2012

VIA HAND DELIVERY & ELECTRONIC MAIL

Luly E. Massaro, Commission Clerk
Rhode Island Public Utilities Commission
89 Jefferson Boulevard
Warwick, RI 02888

RE: Docket 4237 - Commission Investigation relating to Stray and Contact Voltage Occurring in Narragansett Electric Company Territories
Responses to Record Request #2 and #4

Dear Ms. Massaro:

On behalf National Grid[1] enclosed are ten (10) copies of the Company's responses to Record Request #2 and #4 issued at the Commission's Evidentiary Hearing held on September 24, 2012 in the above-captioned proceeding.

Thank you for your attention to this transmittal. If you have any questions, please feel free to contact me at (401) 784-7667.

Very truly yours,

Thomas R. Teehan

Enclosure

cc: Docket 4237 Service List
Steve Scialabba
Leo Wold, Esq.

[1] The Narragansett Electric Company d/b/a National Grid ("National Grid" or the "Company").

Certificate of Service

I hereby certify that a copy of the cover letter and/or any materials accompanying this certificate were electronically transmitted to all individuals listed below. Copies of this transmittal will be hand delivered to the RI Public Utilities Commission.

_____ September 27, 2012

Docket No. 4237 – Commission's Proceeding Relating to Stray and Contact Voltage Pursuant to Enacted Legislation Service List updated 9/20/12

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Record Request #2

Request:

In Table 1 on page 9 of 29 of the Company's Proposed Contact Voltage Program, please provide a definition of

a) Roads (divided highways> 200' plus related facilities
b) Transitional Areas (urban open)

(TR I, September 24, 2012, page 48)

Response:

a. **Roads (divided highways >200' plus related facilities) is defined as:**

Related facilities would include rest areas, highway maintenance areas, storage areas, on/off ramps, and maintained grassy areas adjacent to the roadway. Also included is the grass or wooded median strip between the roads. Roads less than 200 feet in width that are the center of two differing land use classes will have the land use classes meet at the center line of the road. Bridges that are greater than 200 feet wide will be included in this category.

b. **Transitional Areas (urban open) is defined as:**

Areas that are in the process of being developed from one land use to another. Since these are transitional lands, it is not always apparent what the new land use will be so they are classified as this category. Typically, these areas are being developed for residential, commercial or industrial use. Comparison to older imagery shows that it was previously another land use or land cover category.

Record Request #4

Request:

Please provide the information the Company will include in its revised to EOP to explain what the Company proposes to do for an elevated voltage test result found between 1 volt and less than 4.5 volts. (TR I, September 24, 2012, page 224)

Response:

The Company agrees with the Division's September 25, 2012 determination that a proper level of contact voltage and concomitant repair under R.I.G.L. §39-2-25(b)(4) is 4.5 volts. Under Section 6.1.2 of the Company's EOP G016, for voltage measurements less than 4.5 volts, and found to be consistent with system operation design (no visual evidence of a problem upon review), no further action is required. This record request requests that the Company to further explain what, if any, additional actions the Company would undertake where a voltage measurement of 1 volt up to the 4.5 volts threshold is found.

At this time, the Company does not believe that amending its existing EOP for voltage readings between 1 volt and 4.5 volts is appropriate. Particularly since these levels are below that determined by the Division as requiring mitigation and the appropriate mitigation procedures for contact voltage is still an open issue under review by the Institute of Electrical and Electronics Engineers ("IEEE") Working Group. At the September 24, 2012 hearing in this docket, this IEEE Working Group Draft was entered as the Contact Voltage Information Center's ("CVIC") Exhibit 2. As was noted at the hearing, this document is only in draft status and has not been published as a final document by the IEEE Working Group. That draft document discusses the use of total harmonic distortion ("THD") levels when determining appropriate mitigation for elevated voltages. According to the IEEE Working Group draft, THD represents a possible method to determine whether an elevated voltage is contact voltage or stray voltage. Voltages that have greater than ten percent ("10%") THD are generally stable and are considered part of a normally operating electrical system. As such, readings greater than 10% are usually not considered contact voltage. However, in cases where the THD reading is less than 10%, this voltage can be the result of faulted phase conductors that should not exist in normally operating electric facilities and may need to be mitigated to prevent public contact.

Therefore, before modifying its existing EOP for voltage levels below 4.5 volts, the Company would propose to gather additional information and use the THD method in a pilot program. Specifically, the Company plans to use the THD measurement as part of its initial forty percent ("40%") voltage testing in Downtown, College Hill and Smith Hill in Providence and in Newport, Pawtucket, and Woonsocket. If during testing of these areas the voltage measures greater than 1 volt and less than 4.5 volts and has a total harmonic distortion of less than 10% the

Record Request #4, page 2

voltage will be considered contact voltage. These areas will then be safeguarded from the public and permanent repairs will be made. If the total harmonic distortion is greater than 10% and no visual defects are found, no further action will be required. THD will be determined by the use of a Fluke power quality clamp meter or a Fluke scope meter, both of which have the ability to measure THD.

To implement this pilot program, the Company would modify and reissue the RFP, but this is not expected to impact the Company's ability to complete the initial testing of 40% of the contact voltage risk areas by July 1, 2013. The Company will provide the results of this THD pilot program to the Division and the Commission within 45 days of completion of the initial 40% testing. Depending on the results of the IEEE Working Group and the results of this THD program, the Company can then make a more informed decision on whether it should revise its existing EOP procedure for voltage less than 4.5 volts. This information would also assist the Company in any purchasing decisions with respect to additional THD equipment and as to any necessary training for its manual and mobile testing programs.